

**REPORT
TO THE CONGRESS
ON
U.S. POLICY
ON ASAT ARMS CONTROL**

31 MARCH 1984

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Preface

The Congressional conference report for the Department of Defense Appropriations Act for the Fiscal Year ending September 30, 1984 states:

The conferees agree to provide \$19,409,000 for advance procurement for the Antisatellite (ASAT) program as proposed by the Senate, instead of no funds as proposed by the House. However, the conferees direct that these funds not be obligated or expended until 45 days following submission to the Congress of a comprehensive report on U.S. policy on arms control plans and objectives in the field of ASAT systems. In no event shall such report be submitted later than March 31, 1984. Such report should include specific steps the Administration contemplates undertaking, within the context of U.S. - Soviet negotiations, to seek a verifiable agreement with the Soviet Union to ban or strictly limit existing and future ASAT systems. The report should be unclassified, with classified addenda as required, and suitable for general release.

This Report to Congress fulfills that requirement. It summarizes U.S. national security requirements pertaining to ASAT weaponry, and the problems and possibilities for ASAT arms control. The Report is in two versions, one is unclassified and the other, containing additional detail, is classified.

U.S. POLICY ON ASAT ARMS CONTROL

I. Overview

U.S. arms control policy must serve our fundamental national security objectives. In particular, arms control arrangements should reduce the risk of war (through measures which strengthen deterrence, increase confidence, and enhance strategic stability) or reduce the destructiveness of warfare. Arms control arrangements for space are desirable if they contribute to our overall deterrence posture and reduce the risk of conflict, not as ends in themselves. Similarly, possible limits or bans on anti-satellite (ASAT) arms must be judged not only in their ability to limit damage to space objects, but also in their contribution to achieving the basic objectives of arms control with respect to terrestrial conventional and nuclear conflict.

The U.S. National Space Policy, announced by the President July 4, 1982, is consistent with the long-standing U.S. approach to space arms control in previous agreements. It states:

"The United States will continue to study space arms control options. The United States will consider verifiable and equitable arms control measures that would ban or otherwise limit testing and deployment of specific weapons systems, should those measures be compatible with United States national security."

Guided by these criteria, the United States has been studying a range of possible options for space arms control with a view to possible negotiations with the Soviet Union and other nations, if such negotiations would serve U.S. interests. The United States is also prepared to examine space arms control issues in the Conference on Disarmament (CD). However, no arrangements or agreements beyond those already governing military activities in outer space have been found to date that are judged to be in the overall interest of the United States and its Allies. The factors which impede the identification of effective ASAT arms control measures include significant difficulties of verification, diverse sources of threats to U.S. and Allied satellites and threats posed by Soviet targeting and reconnaissance satellites which undermine conventional and nuclear deterrence.

Notwithstanding these difficulties, the United States is continuing to study space arms control, in search of selected limits on specific types of space systems or activities in space which could satisfactorily deal with problems such as those described above. Until we have determined whether there are, in fact, practical solutions to these problems, we do not believe it would be productive to engage in formal international negotiations. The United States remains ready, however, to examine

the problems and potential of space arms control at the Conference on Disarmament.

II. ASAT Arms Control Considerations

U.S. policy toward limiting arms in space is part of the overall U.S. commitment to effective arms control. This commitment is reflected, for example, in our proposals in START, INF and MBFR for achieving substantial, verifiable reductions in nuclear and conventional forces, and in U.S. proposals for a chemical weapons ban. This commitment also is basic to the U.S. approach to space arms control. The United States is party to, and had a lead role in negotiating, a number of major international agreements that apply to space, including the Outer Space, Anti-Ballistic Missile (ABM) and Limited Test Ban Treaties. In addition, the United Nations Charter is expressly made applicable to space activities by the Outer Space Treaty.

These agreements provide a substantial, existing body of law regarding space arms control. Included in existing law is a ban on testing, orbiting, or stationing of nuclear weapons or other weapons of mass destruction in space; a ban on placing military installations on celestial bodies; a ban on development, testing and deployment of space-based ABM systems or their components; and a requirement for appropriate international consultations before conducting any activity or experiment that would cause potentially harmful interference with other countries' peaceful space activities.

United States arms control policy and plans for ASAT systems, as well as for any space weapons generally, result from an examination of a broad spectrum of factors. These factors relate to military activities in space and other activities regarding conventional and nuclear weapons, U.S. foreign policy activities and even U.S. commercial and scientific uses of space. In fact, ASAT arms control appears to span a greater breadth of subjects than any other area of arms control.

Previous ASAT Talks

At the initiative of the United States, bilateral negotiations between the US and USSR on control of anti-satellite weapons were held in 1978-79. These talks involved an extensive discussion of some of the problems of space arms control, and revealed major differences between the two sides. Further U.S. study since then has brought the whole topic of space arms control into sharper focus.

Potential Benefits of Space Arms Control

The potential benefits of any ASAT control regime would depend on both its framework and its details. The spectrum of possible space arms control measures includes bans on specialized

ASAT weapons and much less ambitious undertakings. To be acceptable any measure must be equitable, effectively verifiable and compatible with our national security. If any space arms control measures met these criteria, and were complied with, then they would have a number of potential benefits. For example, depending on the scope and effectiveness of an agreement, it might:

1. Limit specialized threats to satellites and constrain future threats to such key satellites as those for early warning. Such limitations on specialized threats to satellites, together with satellite survivability measures, could help preserve and enhance stability.

2. Raise the political threshold for attacks against satellites. Restricting threatening activity and/or prohibiting attacks on satellites would add to existing international law aimed at lowering the likelihood of conflict in space.

3. Meet some international concerns regarding the use of space for military purposes.

Problems Facing ASAT Arms Control

In addition to the potential benefits of space arms control, a balanced study of this topic must take into account a number of problems. These include: the need for effective verification; the potential for breakout; the risks of disclosing sensitive information; the problems of definition of space weapons; the vulnerability of satellite support systems; and Soviet military space activity.

Verification. Effective verification is fundamental to arms control. This applies to space arms control as it does to arms reductions in other fora. The Congressional language mandating ASAT arms control efforts has been uniformly specific on the matter of verification: any ban on ASAT systems is to be verifiable.

In general, verification of arms control agreements suffers from the extremely asymmetric degree of openness between the United States and the Soviet Union. The open U.S. society makes the Soviet task of monitoring U.S. activities regarding arms control compliance a relatively easy matter. In contrast, the closed Soviet society and the general Soviet tendency toward secrecy make U.S. monitoring and verification of compliance much more difficult. This problem is aggravated for ASAT systems because the satellites which serve U.S. and Allied security are few in number. Cheating on anti-satellite limitations, even on a small scale, could pose a disproportionate risk to the United States.

In this regard, the Soviets would have a far easier problem of verifying compliance with limitations on the U.S. ASAT

system than we would have on the Soviet system. For example, a ban on all ASAT systems would require that the Soviet ASAT interceptor system be eliminated. The Soviet interceptor is relatively small and is launched by a type of space booster that the Soviets use for other space launch missions. It is not clear how many interceptors or boosters have been manufactured. The USSR could maintain a covert supply of interceptors which could be readied quickly for operational use, probably without risk of U.S. detection. Launch vehicles could be diverted from other missions to launch ASAT interceptors.

Verification problems apply to other aspects of space arms control as well. For instance, tests of a ground-based laser ASAT weapon could be concealed. In addition, determining with confidence whether an object hundreds of kilometers above the earth has been damaged could, in practice, be extremely difficult, and from what source it had been damaged could be extremely difficult or impossible. It may be difficult to determine whether a satellite has been damaged by electronic countermeasures. It is also difficult, or in some cases could be impossible, to determine whether an orbiting satellite contains a weapon.

Additional verification problems arise if ASAT testing is banned or limited. The wide variety of ASAT systems listed below in the discussion of problems of definition, and the fact that ASAT capabilities can be a by-product of systems developed for other missions, create problems of identifying what would be prohibited under testing limitations. The fact that ASAT capabilities are inherent in some systems developed for other missions or are amenable to undetected or surreptitious development makes it impossible to verify compliance with a truly comprehensive testing limitation that would eliminate tests of all methods of countering satellites. Test bans for a more limited class of ASAT systems may be verifiable, and these are being studied to determine if they are in our national interest. The breakout potential of that limited class of ASAT systems is very troublesome and creates doubt that limited test bans could be effective.

The difficult verification problems could, in some cases, be mitigated by future technological developments, or by cooperative measures contained in future arms control agreements. Such possibilities are under study.

Breakout. Among the criteria which must be used in evaluating the implications for national security of any potential arms control measure is that of "breakout." This is the risk that a nation could gain a unilateral advantage if the agreement ceased to remain in force for any reason, for example through sudden abrogation, and obtain a head start in building or deploying a type of weapon which has been banned or severely limited. The importance of certain critical U.S. satellites, which are limited in numbers, could create an incentive for the Soviets to maintain a breakout capability.

Breakout potential could exist even if the Soviets, upon agreeing to a ban on ASAT systems, were to destroy all of their existing systems. The Soviets could retain the capability to redeploy quickly a system in which they would have confidence. If prior to the ban the United States had not tested its MV ASAT system, the Soviets alone would possess such proven technology. It might take the Soviets a year or less to deploy their system again.

Under a strict ASAT arms control regime, it is conceivable that the Soviets could change the basic character of their ASAT program. The USSR could have additional ASAT capability in equipment amenable to undetected or surreptitious development, which could be brought to operational status, or to a status that would permit rapid breakout. For example, any nation routinely conducting space rendezvous and docking operations, as the USSR does, could, under the guise of that activity, develop spacecraft equipped to maneuver into the path of, or detonate next to, another nation's spacecraft. Other types of systems amenable to such development include ballistic missiles with modified guidance software such as ICBMs, SLBMs and MRBMs, as well as space boosters with nuclear payloads. There is little reason to believe that the USSR would use any of these non-optimum capabilities in lieu of the systems with known ASAT capabilities. However, a ban on the more readily identifiable ASAT systems could increase the likelihood that other systems would be covertly developed to have ASAT capability.

Disclosure of Information. While the difficult verification problems associated with ASAT arms control might be decreased with the establishment of cooperative measures, in some instances these measures could cause other problems. Information regarding certain U.S. space systems that are associated with national security is among the most sensitive information within the government. Cooperative measures with the objective of enhancing verification of an ASAT arms control agreement might require access to U.S. space systems that were alleged by the Soviets to have ASAT capabilities, and hence could create an unacceptable risk of compromising the protection of that information. Such measures could also have adverse effects on civil uses of space.

Definition. It is difficult to define what constitutes a space weapon for arms control purposes. There are technologies and systems designed for purposes other than ASAT, even some with little or no ASAT capabilities, which may be difficult to exclude from an ASAT definition. Likewise, there are technologies and systems which could have an ASAT application that might not be included in an ASAT definition.

The U.S. Congress has shown concern over space system survivability problems, especially in legislation which each chamber has passed relating the U.S. ASAT program to arms control. The Senate passed a measure to establish criteria

governing the testing of ASAT warheads; in the deliberations over that provision, it was argued that "unless (ASAT) development is stopped, our most important and sensitive military satellites will be in jeopardy." The House of Representatives passed a measure deleting advanced procurement funds for the U.S. ASAT program; in those deliberations, it was argued "that the survival of current and projected U.S. space systems is vital to the national security of the United States." In keeping with those broadly-based satellite survivability concerns we need to recognize that "ASAT capability" relates to all systems capable of damaging, destroying or otherwise interrupting the functioning of satellites. Such systems include:

- maneuvering spacecraft (equipped to maneuver into the path of, or to detonate next to, another nation's spacecraft) such as the coorbital interceptor operationally deployed by the USSR.
- Direct ascent interceptors such as exo-atmospheric ABM missiles, ballistic missiles with modified guidance logic, space boosters carrying nuclear payloads, and homing vehicles such as the miniature vehicle system undergoing development by the United States.
- Directed energy weapons such as lasers and particle beams, (either ground-based or space-based, having sufficient power to damage satellites or their sensors).
- Electronic countermeasures of sufficient power output to damage or interrupt satellite functions.
- Weapons which could be carried by manned space planes or orbital complexes.

Furthermore, problems of weapon definition are compounded because some non-weapon space systems, including civil and commercial systems, could have characteristics which would make it difficult to frame a definition to distinguish them from weapon systems. An effective space arms control measure should take into account weapon capabilities beyond those of specialized ASAT systems, and at the same time it must not unduly constrain the legitimate functions of non-weapon space systems.

In seeking ways to verify an ASAT weapon ban, the Administration has been confronted with critical definitional problems: (1) there are many different types of systems which could be used to destroy satellites; (2) in general, many activities related to space give rise to capabilities inherently useful for ASAT purposes, for example, the rendezvous and docking operations routinely conducted by the Soviets could be used to attempt to conceal development of one or more types of ASAT techniques, and (3) restricting the definition of what is an ASAT weapon could make an agreement easier to verify, but ineffective in achieving

its purpose of protecting satellites. These definition problems interact with and compound the verification problems described above.

Vulnerability of Satellite Support Systems. ASAT arms control would not provide for survivability of all components of space systems. For example, attacks on other elements of a space system (e.g., ground stations, launch facilities, or communications links) may in some cases be easier and more effective than attacks on satellites themselves. Attacks on ground-based support systems can be carried out with strikes by conventional weapons, such as by cruise missiles with conventional warheads launched from ships or aircraft.

The Soviet Non-Weapon Military Space Threat. Examination of space arms control needs to include a discussion of the growing threat posed by present and projected Soviet space systems which, while not weapons themselves, are designed to support directly the USSR's terrestrial forces in the event of a conflict. These include ocean reconnaissance satellites which use radar and electronic intelligence in efforts to provide targeting data to Soviet weapon platforms which can quickly attack U.S. and Allied surface fleets. In view of the fundamental importance of U.S. and Allied access to the seas in wartime, including for Allied reinforcement by sea, the protection of U.S. and Allied navies against such targeting is critical. Furthermore, as Soviet military space technology improves, the capabilities of Soviet satellites that can be used for targeting are likely to be enhanced and represent a greater threat to U.S. and Allied security. This point is explained at greater length below.

III. National Security Considerations Regarding Space

Beyond the significant limitations inherent in space arms control discussed above, other national security interests must be taken into account. These would pertain even if verification were not so significant a concern.

Strengthening Deterrence

A fundamental purpose of defense and arms control policies is to maintain and strengthen deterrence, both conventional and nuclear deterrence. ASAT limitations could, unfortunately, undermine deterrence in some instances.

Since the Soviet Union has an operational capability to destroy satellites while the United States does not, the current situation is destabilizing. If, for example, during a crisis or conflict, the Soviet Union were to destroy a U.S. satellite, the United States would lack the capability to respond in kind to avoid escalating the conflict. Thus, in present circumstances a U.S. capability to destroy satellites clearly responds to the need to deter such Soviet attacks on U.S. satellites in a crisis or conflict.

A comprehensive ASAT ban would afford a sanctuary to existing Soviet satellites designed to target U.S. naval and land conventional forces. The absence of a U.S. ASAT capability to prevent Soviet targeting aided by satellites could be seen by the Soviets as a substantial factor in their ability to attack U.S. and Allied forces and might offset Soviet concerns about the effectiveness of U.S. and Allied naval warfare capabilities. Uncertainty over their ability to employ satellites to target naval forces would decrease the Soviet perception of their chance for success, thereby adding to deterrence and stability. A U.S. ASAT capability would contribute to deterrence of conventional conflict.

For US and Allied security, the United States must continue its efforts to protect against threatening satellites. ASAT capabilities complement the other measures that must be used throughout a conflict. To do otherwise would undermine both conventional and nuclear deterrence. (Further discussion of the above factors is provided in the classified version of this report.)

For these fundamentally defensive reasons, the President has called for a prudent, measured response to the Soviet military space threat in order to protect U.S. and Allied security interests. In his National Space Policy statement he said:

The United States will develop and maintain an integrated attack warning, notification, verification and contingency reaction capability which can effectively detect and react to threats to United States space systems. The United States will proceed with development of an anti-satellite (ASAT) capability, with operational deployment as a goal. The primary purposes of a United States ASAT capability are to deter threats to space systems of the United States and its Allies and, within such limits imposed by international law, to deny any adversary the use of space-based systems that provide support to hostile military forces.

Soviet Threats to U.S. Satellites

The current Soviet ASAT capabilities include an operational orbital interceptor system, ground-based test lasers with probable ASAT capabilities, and possibly, the nuclear-armed GALOSH ABM interceptors, and the technological capability to conduct electronic warfare against space systems.

The orbital interceptor must go into approximately the same orbit as its target and close at a specific velocity. There have been more than a dozen tests of the interceptor system, which we consider operational, including testing during a Soviet strategic forces exercise in 1982.

A Soviet high-altitude orbital interceptor capability is a possible threat, but we have no direct evidence of such a program

by the Soviets, and we may not obtain such evidence before testing. Other techniques for accomplishing this objective may appear preferable to the Soviets. For example, they could also use their developing electronic warfare capabilities against high-altitude satellites. We cannot now say which, if any, such high-altitude capabilities may be developed by the USSR.

Continuing, or possible future, Soviet efforts that could produce ASAT systems include developments in directed energy weapons. We have indications that the Soviets are continuing development of ground-based lasers for ASAT applications. In addition, we believe the Soviets are conducting research and development in the area of space-based laser ASAT systems. We have, as yet, no evidence of Soviet programs to develop ASAT weapons based on particle beam technology.

(Additional data concerning Soviet threats to U.S. satellites are contained in the classified version of this report.)

U.S. Satellites Threatened

While these numerous potential Soviet threats to U.S. satellites must be taken seriously, an immediate need is to address known Soviet ASAT capabilities. The operational Soviet orbital ASAT system threatens U.S. low altitude satellites. In addition, there is a possibility that some sensors on some U.S. satellites could be damaged by ground-based Soviet lasers. Capabilities which have been or could be surreptitiously developed possibly threaten all U.S. satellites up to geosynchronous orbits. (More data concerning U.S. satellites threatened by Soviet ASAT capabilities are provided in the classified version of this report.)

Options to Counter Soviet Threat to U.S. Satellites

Deterrence provided by a U.S. ASAT capability would inhibit Soviet attacks against U.S. satellites, but deterrence is not sufficient to protect U.S. satellites. Because of the potential for covert development of ASAT capabilities and because of the existence of non-specialized weapons which also have ASAT capability, no arms control measures have been identified which can fully protect U.S. satellites. Hence, we must continue to pursue satellite survivability measures to cope with both known and technologically possible, yet undetected, threats.

Over the past several years the United States has begun to incorporate survivability features into various satellite systems. In addition, the Department of Defense has recently initiated a major review of survivability of not only the satellites but also the communication links and ground systems which support them. The purpose of this effort is to review potential vulnerabilities and to identify further survivability measures for implementation.

Enhancing space system survivability requires a variety of measures. For example, satellite maneuverability helps protect

against ASAT interceptors. Maneuver, however, is a costly tactic in that it shortens satellite mission lifetime and perturbs the satellite's orbital characteristics. Hardening satellites can improve defenses against directed-energy and nuclear weapons, but this tactic provides little effectiveness against a direct nuclear attack. Electronic counter-countermeasures could thwart some electronic warfare tactics directed against U.S. satellites. Another potential survivability measure would be to develop a capability to shoot back at threatening systems. Even more than those options previously stated, shooting back involves a number of severe mission penalties. In sum, these defensive measures add to satellite costs, reduce useful payload weights, shorten mission life time, and add to system development and testing complexity; no single defensive measure is totally effective against all threats.

A different category of defensive measures would involve the use of orbital spares and changing the current U.S. satellite replacement philosophy. By procuring sufficient satellite and booster spares, the United States could pursue a launch on demand strategy for the most critical space capabilities. This strategy, combined with the use of stored spares on-orbit, might circumvent the effectiveness of a Soviet ASAT assault. This philosophy runs counter to current U.S. trends of developing space systems of greater sophistication and longer expected useful mission life. In sum, this option would require considerable investment, not now envisioned, in boosters, spacecraft production, launch facilities, and ground support.

The table shows in generic terms the satellite survivability features applicable to potential threats to space systems.

U.S. ASAT Program

The U.S. ASAT system presently under development consists of a miniature vehicle (MV) warhead mounted on a two-stage SRAM/Altair booster. This is carried aloft and launched from a specially modified F-15 aircraft. The MV will be capable of attacking satellites in low altitude orbits. The system is currently undergoing testing. It is to be deployed at one Air Force base on each coast of the United States.

The United States has no plans to extend the altitude capability of the MV ASAT system to place high altitude satellites at risk. We are, however, continuing to review ways in which U.S. ASAT capability could be improved. The U.S. ASAT program is being conducted in a manner fully consistent with all U.S. obligations including the ABM and Outer Space Treaties.

Directed energy weapons technologies, including high energy lasers have the potential for ASAT use. These technologies are in the research and development phase.

(Further data on the U.S. program are contained in the classified version of this report.)

POTENTIAL PROTECTIVE MEASURES

ASAT CAPABILITY

	<u>Maneuver</u>	<u>Harden/ Shield</u>	<u>Orbital Spares</u>	<u>Replen- ishment</u>	<u>Shoot Back</u>
<u>Coorbital</u>					
Nuclear	X		X	X	X
Non-Nuclear	X		X	X	X
<u>Direct Ascent</u>					
Nuclear	X	X	X	X	X
Non-Nuclear	X		X	X	X
<u>Ground-Based Directed Energy</u>					
Lasers	X	X		X	
High Power RF	X	X		X	
ECM		X		X	
<u>Other Space Platforms With Weapons</u>					
Lasers		X			
Particle Beam					
High Power RF		X		X	
Non-Nuclear	X				X
ECM		X		X	

"X" indicates measures that could be used with varying effectiveness to improve satellite survivability against possible threats. As noted in the text, each defensive measure implies increase in cost and/or significant mission penalties and no single measure is totally effective against all threats.

Utility of a U.S. ASAT Capability

The U.S. ASAT program is focused explicitly on those Soviet satellites which threaten U.S. and Allied terrestrial interests in time of war. All of these threatening Soviet satellites operate at low altitude. Without low altitude satellites to confirm detections of terrestrial targets, Soviet space-based targeting data would be significantly degraded. While the U.S. MV ASAT will be able to attack only a portion of the Soviet satellites, in doing so it would be able seriously to degrade the Soviet reconnaissance capability and thus serves U.S. deterrence objectives. It cannot and need not attack Soviet early warning satellites at high altitudes.

Because of their high launch rates and payload capacity, the Soviet space force has the inherent resiliency to make replacement of satellites a viable alternative (as long as ground facilities are intact). On-orbit spares, surge of launches in a crisis or prior to a hostility, and satellite replacement following ASAT attack are possible methods of replenishment. The U.S. program is structured to provide a number of readily available ASAT systems sufficient to counter expected Soviet surge and replenishment.

Possible Soviet Counters to the U.S. MV ASAT

The U.S. MV ASAT was designed with possible Soviet counters in mind. Maneuvering to avoid intercept is the most frequently discussed countermeasure which the Soviets could employ. It is not clear that the Soviets have the capability to determine which satellite would be the target of a given attack and thus would have to maneuver several of their satellites each time the U.S. launched or simulated the launch of an ASAT interceptor. Because repeated maneuvers would reduce Soviet satellite lifetimes, maneuver would be a costly countermeasure. Although the Soviets could, in the future and at some expense, increase their satellite maneuver capability, this could be offset by U.S. satellite tracking improvements planned for other purposes.

Raising somewhat the orbital altitude of certain existing Soviet low altitude satellites could improve their survivability, but would impair their performance. Only if the Soviets deployed at this new altitude a new targeting capability similar to their existing capability at the lower altitude would the United States need to counter such a capability, for example, by developing a larger booster for the ASAT MV.

Soviet use of simple decoys to improve satellite survivability could be countered by changes in ASAT sensor logic. Complex decoys might require changes in Soviet satellites which could take many years.

Alternatives to Offset the Threat Posed by Soviet Satellites

U.S. force structure plans include a balanced package of complementary defensive measures. The capability to counter Soviet satellites is an important element of those plans. To the extent that we limit our capabilities to counter Soviet satellites, we tend to increase our need to augment our conventional forces to perform their terrestrial missions in the face of the Soviet threat from space, with attending costs.

To counter Soviet satellites by attacking their ground facilities would be an uncertain alternative to an ASAT capability and one which risked escalation of a conflict. A U.S. ASAT capability is a less risky and more effective and flexible way to deal militarily with the Soviet space-based threat.

The ASAT MV complements other protective measures which must be used throughout a conflict. These measures include communications and emissions security, evasive maneuvers and electronic countermeasures. These countermeasures are, however, reactive and cannot provide permanent protection. Moreover, they can impose sharp constraints on the operational effectiveness of U.S. forces in a conflict.

IV. Arms Control Prospects in Light of Policy and National Security Considerations

The balance between the benefits and risks of ASAT arms control is quite sensitive. For example, there is a dilemma as to whether arms control restrictions that would constrain our ability to deal with Soviet targeting satellites, are in our national security interest. Our need to counter such Soviet satellites so as to support our terrestrial forces must be balanced against our interest in limiting threats to critical U.S. satellites. Our studies of possible ASAT arms control regimes are considering these concerns.

Soviet ASAT Arms Control Activities

Although the Soviets have periodically tested their operational ASAT interceptor, they regularly advance space arms control measures in international fora, without acknowledging their own ASAT capability. In their latest initiative last August, the Soviet Union submitted to the 38th United Nations General Assembly a draft treaty, the stated objectives of which are to prohibit testing and deployment of space-based weapons. It calls for elimination of existing ASAT systems, for a ban on the development of new ASAT weapons, and for a ban on attacks on satellites. The USSR also announced a "unilateral moratorium" on the launching of any type of ASAT weapon, to remain in effect as long as other countries refrain from putting into space ASAT weapons of any type.

U.S. Evaluation of Soviet Initiatives

The wording of these proposals had certain ambiguities and loopholes. For example, it would appear that the moratorium did not cover tests of ground-based systems, such as lasers. In any case, the Soviet moratorium appeared to be designed to block tests of the U.S. miniature vehicle ASAT interceptor, while allowing the USSR to maintain the world's only operational ASAT system. This is inconsistent with the USSR's profession "not to be the first to put into outer space any type of ASAT weapon."

The Soviet initiatives have fundamental shortcomings. Lack of effective verification is one of the major weaknesses of the draft treaty. It provides for national technical means of verification, but nothing beyond that. Indeed, the draft does not even prohibit actions that would impede verification. In addition to the problem of verifying the elimination of the Soviet ASAT system, the draft treaty's proposal for a ban on destruction, damaging, and disruption of other states' space objects could also pose verification problems. The Soviet draft treaty is unclear with regard to Soviet targeting and reconnaissance satellites. The draft also does not deal with residual ASAT capabilities. For example, dismantling of the Soviet co-orbital ASAT system would still leave the USSR the option of using some of its Galosh ABM interceptor missiles in an antisatellite role. In addition, the draft treaty proposes that "piloted" spacecraft not be used for "military purposes." We strongly suspect that this provision is intended to constrain the use of the U.S. Space Transportation System (the Space Shuttle), which in the years ahead will serve as the primary U.S. launch system for national security as well as civil space missions. At the same time, the treaty would apparently not constrain the Soviet unpiloted space station.

Similarly, the possible motives behind the Soviet offer of a "moratorium" are suspect. In addition to their operational ASAT system the Soviets currently have other systems with ASAT capability. The Soviet moratorium deals only with their operational system, allowing the others to continue. For example, the Soviets could test ground-based lasers in an ASAT mode without violating their moratorium. Moreover, the Soviet offer came on the eve of the commencement of flight testing of the U.S. MV system. Thus, the timing suggests that the Soviet offer is designed to curtail the U.S. MV program and thereby leave the Soviet Union with a unilateral advantage in ASAT capability. Furthermore, a test moratorium would not necessarily cause their operational system to atrophy: after a hiatus of several years in ASAT testing, the Soviets were able to resume testing of their ASAT system without any apparent degradation in its performance. Programs in research and development pay a much higher price for a test moratorium. Even a short delay in the test program would delay the time that the U.S. ASAT could be operational. This would decrease the Soviet incentive to negotiate in good faith. (A full analysis of the Soviet draft treaty is provided in the classified version of this report.)

It appears that the Soviet objectives in their initiatives are to limit disproportionately the U.S. ASAT capability and to enhance the Soviet international image.

In sum, it appears that Soviet initiatives on ASAT arms control pose profound verification problems, as in the case of the Soviet treaty, or would leave the USSR with a destabilizing advantage, as in the case of both the treaty and the moratorium.

Multilateral Space Arms Control Activities

The United States has supported discussion of a broad range of questions on space arms control at the Conference on Disarmament (CD). The United States supported in 1983 the establishment of a CD Working Group on Outer Space. The United States does not favor having a working group undertake negotiations. Rather, we believe that a working group should address a broad range of space arms control issues, beginning with a thorough examination of the existing legal regime for space, before any conclusions can be drawn about negotiations which might be pursued in the CD. In 1983, the Soviets insisted that a working group on outer space in the CD be commissioned to begin negotiations. While the United States, our Allies, and the neutral and non-aligned nations of the CD all were ready to establish a working group without authority to negotiate, the Soviets blocked such action. The U.S. position this year in the CD is unchanged: the United States remains ready to proceed with a serious and responsible examination in the CD of space arms control.

Future Directions of ASAT Arms Control

U.S. space arms control policy seeks to reduce the risk of conflict and enhance strategic stability. Consistent with this purpose, the Administration has been evaluating a number of possible ASAT arms control options in light of whether they support our overall deterrence posture and are effectively verifiable. Despite efforts by this and the previous administration, no way has yet been found to design a comprehensive ASAT ban that meets these criteria.

The major problems for ASAT arms control discussed in detail in this report have hindered our efforts to develop effective arms control measures. In fact, it appears that the problems of verification tend to be greater the more comprehensive the limitation. Some less sweeping options under study would seek to limit or ban specific types of weapons systems. Since we must in any event be able to protect our satellites against threats that could be developed without our knowledge, there is a premium on finding ways to limit in arms control those ASAT systems that create the most difficult survivability problems. We are searching for limits on such systems which are effectively verifiable and which allow us to protect U.S. and Allied forces from threatening Soviet satellites, such as targeting satellites. Other options

under examination would regulate certain threatening activities related to space.

The future of space arms control must also be considered in the broader context of U.S.-Soviet arms control relations. Soviet actions in other negotiating fora and Soviet actions with respect to compliance with existing arms control agreements must also be taken into account to determine the most appropriate course of action for the United States concerning arms control for outer space. In the meantime, the U.S. evaluation of possible future courses for ASAT arms control will be judged not simply in light of their ability to limit damage to space objects, but also in light of their contributions to the basic objectives of U.S. arms control policy with respect to terrestrial conventional and nuclear conflict.

The door is not closed to effective ASAT arms control measures. As noted earlier, the President has said that the United States will consider verifiable and equitable arms control measures that would ban or otherwise limit testing and deployment of specific weapons systems, should those measures be compatible with U.S. national security.

This remains the policy of the Administration. The active search for viable arms control opportunities in the ASAT area is continuing.